

Chapter 2: Description of Alternatives

2.1 Introduction

This chapter describes the alternatives considered to meet the purpose of and need for the Cheyenne Overpass, Pocatello proposed action. In accordance with guidelines provided in FHWA's Technical Advisory T6640.8A, both a No-Build and several build alternatives were considered in the analysis. This chapter explains why some alternatives were eliminated from detailed study and describes the No-Build Alternative and the alternatives that were carried forward for detailed study.

2.2 Summary of Alternatives Considered

A range of alternatives was developed through the NEPA public and agency involvement process. To determine if the proposed alternatives satisfied the purpose of and need for the proposed action, each alternative was evaluated based on a series of preliminary engineering studies, environmental reconnaissance/inventory studies, and comments received during the public involvement process. The proposed alternatives are intended to accomplish the following objectives:

- Provide a long-term safety solution at the Cheyenne Avenue/UPRR crossing.
- Improve east-west travel in south Pocatello.
- Eliminate the delay and associated costs at the current at-grade Cheyenne Avenue/UPRR crossing.

According to FHWA's Technical Advisory T6640.8A, alternate means of meeting the proposed action's purpose and need (such as transportation system management options and increased use of mass transit) should be considered in the development of alternatives. The guidelines also suggest that considering these types of alternatives is usually relevant only for major projects proposed in urban areas with a population over 200,000. According to the *BPO Long-Range Transportation Plan Update: 2002–2025* (BPO 2002), the estimated 2025 population for the greater BPO planning area is projected to be 93,000 people. Because the estimated population in the planning area for this proposed action is less than 200,000 people, transportation system management and mass transit alternatives were not considered in this EA, and therefore only alternative roadway alignments were developed. While all of the alternative alignments

considered generally would meet the proposed action's purpose and need, only those alignments that minimized environmental impacts were carried forward for detailed study in Chapter 3, Affected Environment and Environmental Consequences.

The following alternative alignments were developed to meet the purpose of and need for the proposed action:

1. Cheyenne Avenue Alternative
2. Shoshoni North Alternative
3. Shoshoni South Alternative
4. Hildreth North Alternative
5. Hildreth South Alternative
6. No-Build Alternative (carried forward for a baseline comparison)
7. Leo-Harper Alternative (carried forward for detailed study)

Table 2.2-1 below summarizes the key environmental impacts associated with all alternatives developed for this proposed action. The detailed alternatives comparisons are included in Appendix C, Detailed Comparison of Alternatives.

Table 2.2-1. Impacts of the Alternative Alignments on Key Environmental Resources

Impacts	Alternatives Not Carried Forward for Detailed Study						Alternatives Carried Forward	
	Cheyenne Avenue	Shoshoni North	Shoshoni South	Hildreth North	Hildreth South	Extension Option ^a	No-Build	Leo-Harper
Residential relocations	8	6	2	0	0	0	0	0
Safety concerns	High	High	Moderate	Low	Low	Moderate	Low	Moderate
Noise impacts (affected receptors)	6	4	2	1	1	3	0	3
Section 4(f) impacts (recreational)	None	None	0.7 acre	None	None	None	None	None
Section 4(f) impacts (historical/ archaeological sites)	3 sites	1 site	None	1 site	None	None	None	None
Visual impacts	High	High	Moderate	Moderate	Moderate	High	Low	High
Vegetation loss	9.3 acres	14.3 acres	3.5 acres	4.8 acres	6.5 acres	5.4 acres	None	7.8 acres
Meets projected traffic needs	Yes	Yes	Yes	No	No	Yes	No	Yes

^a Alignment option for Cheyenne Avenue, Shoshoni North, and Leo-Harper Alternatives to avoid tunneling under I-15.

2.3 Alternatives Not Carried Forward for Detailed Study

All of the alternative alignments considered met the purpose of and need for the proposed action. However, four of the alternatives were not carried forward for detailed study due to environmental constraints and impacts or due to traffic considerations, such as improving east-west travel in Pocatello or eliminating the vehicle delay at the existing at-grade Cheyenne Avenue/UPRR crossing.

Using a selected set of engineering and environmental criteria described in Appendix C, Detailed Comparison of Alternatives, a comparative and sequential review process was developed to summarize and compare the alternatives. This iterative review process, coupled with public and agency input, led to the elimination of the Cheyenne Avenue, Shoshoni North, Shoshoni South, Hildreth North, and Hildreth South alternatives.

2.3.1.1 Cheyenne Avenue Alternative

The Cheyenne Avenue Alternative (see Figure 2-1, Alternative Alignments Not Carried Forward (North)) begins at the intersection of Cheyenne Avenue and Bannock Highway, proceeds northeast along the existing Cheyenne Avenue, crosses the Portneuf River and UPRR tracks to 2nd Avenue, and terminates in a small basalt canyon near the AMI-Kirkham Trail. From the AMI-Kirkham Trail, the alignment proceeds north and east through property administered by the Bureau of Land Management (BLM), passes beneath I-15, and terminates at South 5th Avenue near Constitution Park. The total length of this alignment would be about 1.25 miles.

The Cheyenne Avenue Alternative was eliminated from detailed study for the following reasons:

- Section 4(f) impacts to archaeologically significant sites
- Eight residential displacements required to accommodate the alignment
- Proximity of the alignment to Indian Hills Elementary School
- Substantial noise impacts (six impacted receptor locations)
- High visual impacts associated with the Indian Hills and Indian Creek subdivisions, Indian Hills Elementary School, and Edson Fichter Nature Area
- Loss of about 9.3 acres of shrub-steppe vegetation

2.3.1.2 Shoshoni North Alternative

The Shoshoni North Alternative (see Figure 2-1, Alternative Alignments Not Carried Forward (North)) begins at the intersection of Shoshoni Trail and Bannock Highway, proceeds north and east adjacent to the city soccer fields behind the Indian Hills Elementary School and along the east side of the Indian Creek subdivision, passes through an irrigated pasture and the Edson Fichter Nature Area, crosses the Portneuf River and UPRR tracks, and terminates in a small basalt canyon near the AMI-Kirkham Trail.

After passing through the canyon, the alignment passes through BLM property, passes beneath I-15, and terminates at South 5th Avenue across from Constitution Park. The total length of this alignment would be about 1.5 miles.

The Shoshoni North Alternative was eliminated from detailed study for the following reasons:

- Section 4(f) impacts to archaeologically significant sites
- Six residential displacements required to accommodate the alignment
- Proximity of the alignment to Indian Hills Elementary School and soccer fields
- Moderate noise impacts (four impacted receptor locations)
- High visual impacts associated with the Indian Hills and Indian Creek subdivisions, Indian Hills Elementary School, and Edson Fichter Nature Area
- Loss of about 14.3 acres of shrub-steppe vegetation

2.3.1.3 Shoshoni South Alternative

The Shoshoni South Alternative (see Figure 2-1, Alternative Alignments Not Carried Forward (North)) would begin at the intersection of Shoshoni Trail and Bannock Highway, proceed east and south through irrigated pasture, and run adjacent to the Juniper Hills Country Club before crossing the Portneuf River and UPRR tracks. After passing through the irrigated pasture, the alignment would continue east through undeveloped land and non-irrigated pasture and cross under I-15 before terminating at South 5th Avenue across from the Bannock County Highway Department. The total length of this alignment would be about 1.1 miles. The Shoshoni South Alternative was eliminated from further consideration because it would require land from a Section 4(f) resource (the Edson Fichter Nature Preserve).

2.3.1.4 Hildreth North Alternative

The Hildreth North Alternative (see Figure 2-2, Alternative Alignments Not Carried Forward (South)) begins about 0.25 mile north of the Bannock Highway and Portneuf Road intersection, proceeds east between a private residence and a church baseball field and through irrigated pasture, and then crosses the Portneuf River. After crossing the river, the alignment continues through non-irrigated pasture before crossing the UPRR tracks. After crossing the railroad tracks, the alignment would continue east through a gravel pit and undeveloped land, cross under I-15, and terminate at South 5th Avenue between two commercial establishments. The total length of this alternative would be about 0.9 mile.

Based on the traffic analysis, this alternative alignment was determined to be too far south in the study area to meet traffic needs and was eliminated from further consideration.

2.3.1.5 Hildreth South Alternative

The Hildreth South Alternative (see Figure 2-2, Alternative Alignments Not Carried Forward (South)) would be similar to the Hildreth North Alternative from Bannock Highway to the UPRR railroad. After crossing the UPRR railroad tracks, the alignment would proceed southeast through undeveloped property before terminating at the intersection of Hildreth Road and South 5th Avenue. The roadway would pass beneath I-15 at the existing Hildreth Road box culvert location. The total length of this alignment would be about 1 mile.

The Hildreth South Alternative was eliminated from further consideration for reasons similar to those described in Section 2.3.1.4 for the Hildreth North Alternative.

2.3.1.6 Extension Option

The Extension Option is not an alternative in itself, but an alignment option that could be used in conjunction with the Cheyenne Avenue, Shoshoni North, or Leo-Harper Alternatives instead of the alignment segment that intersects South 5th Avenue across from Constitution Park. As shown in Figure 2-1, Alternative Alignments Not Carried Forward (North), instead of heading east toward Constitution Park, the extension proceeds northeast across additional BLM lands leased for public park purposes (2.5 acres) and city parklands (6.4 acres). Unlike the other alignments considered, the Extension Option would avoid the need to tunnel beneath I-15 since it would terminate on South 5th Avenue near an existing I-15 interchange.

The Extension Option was eliminated from detailed study for the following reasons:

- Impacts to parts of the existing AMI-Kirkham Trail system
- High visual impacts
- Impacts to traffic at the I-15/South 5th Avenue interchange which would be precluded by ITD's access policy

2.4 Alternatives Carried Forward for Detailed Study

2.4.1.1 No-Build Alternative

NEPA requires that the No-Action (or No-Build) Alternative be considered to serve as a baseline against which decision-makers can compare the environmental impacts of the build alternatives. The No-Build Alternative would maintain the existing roadway system as well as the existing Cheyenne Avenue at-grade railroad crossing. The No-Build Alternative does not meet the purpose and need of improving east-west travel, eliminating delay and associated costs at the current at-grade Cheyenne Avenue/UPRR crossing, and providing a long-term safety solution at the crossing. However, as required by NEPA, the No-Build Alternative was carried forward for detailed study.

2.4.1.2 Leo-Harper Alternative

Leo-Harper Alignment Iterations

Several iterations of the Leo-Harper Alternative were considered during the alternatives development process. The initial alignment began near the intersection of Leo Lane and Bannock Highway and proceeded east through pasturelands and a tree farm before crossing the Portneuf River and UPRR tracks to a tie-in at South 2nd Avenue.

From South 2nd Avenue, the alignment was proposed to cross a basalt terrace, undeveloped land, and BLM property before crossing under I-15 and terminating at South 5th Avenue near Constitution Park.

Based on input received from the various agencies involved in the planning process, the initial Leo-Harper alignment was modified to minimize several of the impacts associated with the initial alignment, including Section 4(f) impacts to historical/archeological resources.

The modified alignment would begin near the intersection of Leo Lane and Bannock Highway and would terminate at South 2nd Avenue. From South 2nd Avenue, two modifications were considered for connecting with South 5th

Avenue. A northern alignment was evaluated that continued east across a basalt terrace, passed through undeveloped land and the BLM property described for the initial alignment, and terminated at South 5th Avenue near Opal Street. In addition, a more southern alignment was evaluated that terminated at South 5th Avenue across from a mobile home park.

The project team decided to eliminate the northern modified alignment because, when compared to the southern alignment, it would require excavation of about 1 million cubic feet of additional basalt rock at the intersection with South 5th Avenue. In addition, the southern alignment would result in better sight distance at the intersection.

Leo-Harper Final Alignment

The Leo-Harper Alternative (see Figure 2-3, Alternative Alignments Carried Forward) begins about 330 feet south of the intersection of Leo Lane and Bannock Highway and proceeds east across undeveloped pastures and through a tree farm before crossing the Portneuf River and UPRR tracks to a tie-in at South 2nd Avenue. From the tie-in point on the basalt cliffs east of South 2nd Avenue, the alignment would cross BLM land currently leased to the City of Pocatello, pass beneath I-15, and terminate at South 5th Avenue near the mobile home park (Phase 2).

Through the agency and public involvement process, it was determined that the Leo-Harper Alternative (Final Alignment) would meet the purpose and need of improving east-west travel between Tech Farm Road to the north, Portneuf Road to the south, Bannock Highway to the west, and South 5th Avenue to the east while minimizing environmental impacts. In addition, as shown in Table 2.4-1 below, the Leo-Harper Alternative would alleviate the vehicle delay and economic costs associated with the at-grade Cheyenne Avenue/UPRR crossing while providing a long-term safety solution at the crossing.

Table 2.4-1. Peak Hour Economic Cost of At-Grade Crossing

Alternative	Trains/Day	Delay (minutes/year)	Annual Train Delay Cost (2025)	Average ADT	Future Value	Net Present Value of Delay over 20 Years
2025 No-Build	30	110,286.6	\$1,246,513	8,714	\$61,606,357	\$26,435,067
2025 Build	30	0.0	\$0.00	14,608	\$0.00	\$0.00

Assumptions:

- Average of 1.37 occupants in each vehicle
- Average of 30 trains passing Cheyenne Avenue per day, or 1 train every 48 minutes
- Trains are traveling at 20 mph when approaching the Cheyenne Avenue crossing
- Average length of trains is 1 mile
- Safety arms come down when a train is 0.5 mile from the crossing (on average)
- Time from start of arms down to arms up is 4.5 minutes
- Per capita income for Pocatello according to the LRTP is \$17,480 per year (hourly rate of \$8.25/hour)

As shown in Table 2.4-2 below, the Leo-Harper Alternative would also improve the level of service on South 2nd Avenue through Ross Park as well as on Cheyenne Avenue and Bannock Highway (see Section 1.7, Level of Service, for an explanation of level of service). Therefore, the Leo-Harper Alternative was carried forward for detailed study in this EA.

Table 2.4-2. Year 2025 Level of Service Summary for Key Network Links with Transportation System Improvements

Segment	Lanes	2025 LOS	
		No-Build Alternative	Leo-Harper Alternative
South 5th Avenue			
North of Century High School	5	A	A
South of I-15 interchange	5	A	C
Bannock Highway			
Bannock Highway south of Cheyenne Avenue (south leg)	4	C	B or better
Bannock Highway north of Cheyenne Avenue (north leg)	4	A	B
Bannock Highway north of Johnny Creek Road	4	F	C or better
South 2nd Avenue			
Through Ross Park	2	D	A
Leo-Harper			
East of Bannock Highway	5	—	B
West of South 5th Avenue	5	—	B
Cheyenne Avenue			
East of Bannock Highway	2	D	A

Transportation System Improvements modeling includes all projects listed in the 2002–2025 LRTP Update.

2.5 Alternatives Studied in Detail

The sections below describe in more detail the two alternatives that are carried forward for environmental analysis in this EA: the No-Build and Leo-Harper Alternatives.

2.5.1 No-Build Alternative

As stated earlier, NEPA requires an analysis of the No-Build Alternative. This alternative serves as a baseline for comparison and allows decision-makers to compare the environmental effects of the build alternatives.

The No-Build Alternative would not include construction of a new east-west arterial between Bannock Highway and South 5th Avenue and would maintain the existing Cheyenne Avenue at-grade railroad crossing. Other than continued routine maintenance, no construction would take place.

2.5.2 Leo-Harper Alternative

Phase 1 (Bannock Highway to South 2nd Avenue). Beginning at Bannock Highway, Phase 1 includes constructing a five-lane, east-west arterial that consists of two eastbound and two westbound travel lanes between Bannock Highway and South 2nd Avenue (see Figure 2-4, Leo-Harper Alternative Phase 1). Each travel lane would be 12 feet wide with a fifth (middle) 14-foot lane serving as a dedicated left-turn lane. Each side of the arterial would have an 8-foot shoulder striped as a dedicated bicycle lane, curb and gutter, and a 6-foot sidewalk. A typical roadway section for the five-lane arterial is shown in Figure 2-5, Typical Roadway Section.

From Bannock Highway, the arterial would proceed east and would cross the Portneuf River and UPRR tracks on a bridge. After crossing the river and railroad, the arterial would intersect with the tie-in that connects with South 2nd Avenue.

The South 2nd Avenue tie-in would be a two-lane roadway consisting of one northbound and one southbound travel lane. Each travel lane would be 12 feet wide, and each side would have a 5-foot shoulder. No curb and gutter or sidewalk would be constructed. The typical roadway section for the South 2nd Avenue tie-in is shown in Figure 2-6, Typical Roadway Section, South 2nd Avenue Tie-In.

Once the roadway becomes operational, the existing Cheyenne Avenue crossing would be closed and the existing bridge over the Portneuf River would be removed. Cheyenne Avenue would terminate at a barrier and turn around just west of the existing Portneuf River bridge crossing.

Phase 1 would accomplish the proposed action's purpose and need of eliminating the Cheyenne Avenue at-grade railroad crossing. After Phase 1 is completed, access to South 5th Avenue would be provided by South 2nd Avenue through Ross Park. A more direct access to South 5th Avenue would be provided by completing Phase 2 of the proposed action.

Phase 2 (South 2nd Avenue to South 5th Avenue). Under Phase 2, the east-west arterial would be completed up to its terminus on South 5th Avenue (see Figure 2-7, Leo-Harper Alternative Phase 2). At I-15, the roadway would pass beneath the interstate, where substantial basalt rock blasting and excavation would be required. To accommodate the new arterial beneath I-15, a northbound and southbound bridge over the basalt cut and arterial would be constructed.

2.6 Comparison of Alternatives

Appendix C, Detailed Comparison of Alternatives, provides a comparison of the final Leo-Harper Alternative and all alternatives not carried forward for detailed study. Impacts to the environment are discussed in detail in Chapter 3, Affected Environment and Environmental Consequences. Potential mitigation measures for the impacts are summarized in Section 3.23, Mitigation Summary.

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Figure 2-1. Alternative Alignments Not Carried Forward (North)

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Figure 2-2. Alternative Alignments Not Carried Forward (South)

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Figure 2-3. Alternative Alignments Carried Forward

11×17 figure

Figure 2-4. Leo-Harper Alternative Phase 1

11×17 figure

Figure 2-5. Typical Roadway Section

8.5×11 figure

Figure 2-6. Typical Roadway Section, South 2nd Avenue Tie-In

8.5×11 figure

Figure 2-7. Leo-Harper Alternative Phase 2

11×17 figure

